

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Lisa C. Chacon, Adam J. G. Ellison, George B. Hares,
 Jeffrey T. Kohli, Josef C. Lapp, and Robert Morena
 Serial No. : 09/990,750
 Filed : November 16, 2001
 For : GLASSES FOR FLAT PANEL DISPLAYS
 Examiner : K. Group
 Group : 1755

Commissioner of Patents and Trademarks
 Washington, D.C. 20231

SUPPLEMENTAL LISTING UNDER 37 CFR §1.98(a)(1)U.S. PATENT DOCUMENTS

<u>Examiner</u> <u>Initial</u>	<u>Document</u> <u>Number</u>	<u>Issue</u> <u>Date</u>	<u>Name</u>	<u>Classification</u> <u>Class</u>	<u>Sub</u>
_____	33. 2,231,811	2/1941	Littleton et al.	49	89
_____	34. 5,244,847	9/1993	Kushitani et al.	501	66
_____	35. 6,250,111	6/2001	Murakami et al.	65	134.9

FOREIGN PATENT DOCUMENTS

<u>Examiner</u> <u>Initial</u>	<u>Document</u> <u>Number</u>	<u>Date</u>	<u>Country</u>
_____	36. 8-034634	2/1996	JP
	with attached English abstract and computer translation obtained from the Japanese Patent Office website		
_____	37. 9-156953	6/1997	JP
	with attached English translation		

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_____ 38. 9-169538 6/1997 JP
with attached English translation

OTHER ART

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_____ 39. ASTM E 228-95, "Standard Test Method for Linear Thermal
Expansion of Solid Materials With a Vitreous Silica
Dilatometer," Annual Book of ASTM Standards, American
Society for Testing and Materials, West Conshohocken PA,
1995, pages 1-7.

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SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

In accordance with 37 CFR §1.56 and 37 CFR §1.97(b)(4), applicants wish to call the Examiner's attention to the references listed on the Supplemental Listing Under 37 CFR §1.98(a)(1) submitted herewith. Copies of these references are enclosed.

Additionally, Corning Incorporated, the assignee of this application, has prepared and tested various examples of these references and of the references previously made of record in this application. Table 1 lists the examples for which at least one of density, CTE, liquidus temperature, or liquidus viscosity was measured. These measurements are in addition to the measurements for Examples 8-10 and 14-15 of the Kohli reference (US 6,060,168; WO 98/27019) previously submitted during the prosecution of this application. The examples of Table 1 were prepared using standard techniques for producing laboratory samples, including the employment of a fining agent to improve glass homogeneity.

Each of the listed examples of References 1-2 and 5-10 of Table 1 had a CTE as measured by Corning or reported in the reference that was outside the $28-33 \times 10^{-7}/^{\circ}\text{C}$ range specified in applicants' independent Claims 1 and 30. Specifically, the CTE's were greater than $33 \times 10^{-7}/^{\circ}\text{C}$, the smallest CTE of any of the listed examples being $34.6 \times 10^{-7}/^{\circ}\text{C}$ for example 15 of

Reference 2. Although some of these examples have measured or reported property values that are within the ranges of Claims 1 and 30, these high CTE values are believed to fully distinguish these examples.

Reference 3 of Table 1 is the Nishizawa reference (US 5,801,109; EP 714,862) cited in the March 5, 2002 Office Action for this application. In paragraph 8 of the Supplemental Declaration of Josef C. Lapp Under 37 C.F.R. §1.132, filed on July 3, 2002, the calculated liquidus viscosity value for each of Examples 4, 14, and 31 of Nishizawa was less than 30,000 poise. In reviewing its records, Corning found that it had prepared and tested Examples 4, 14, and 31 in 1996. The density, liquidus temperature, liquidus viscosity, and CTE values obtained at that time are listed in Table 2.

The measured liquidus viscosity values for Examples 4 and 14 set forth in Table 2 are higher than those calculated, but are still substantially less than the lower limit on liquidus viscosity (i.e., greater than about 200,000 poise) specified in applicants' independent Claims 1 and 31.

As to Reference 4 of Table 1, Corning has not measured and the reference does not report CTE or liquidus viscosity values. Corning has measured liquidus temperature values for Examples 4, 5, 6, and 14 and obtained the following values: Ex. 4 --1285°C; Ex. 5 -- 1368°C; Ex. 6 -- 1315°C; and Ex. 14 -- 1285°C.

Finally, Table 3 sets forth the composition and properties of Corning Incorporated Glass Composition No. 1733. Corning sold this glass prior to the priority date of the present application for use as substrates for active matrix liquid crystal displays (AMLCDs). Corning also sold Corning Incorporated Glass Composition No. 1737 for this purpose prior to the priority date of this application. The composition and properties of that

glass are set forth in Table 1 of applicants' specification in the column labeled "Comp. Ex."

Applicants respectfully submit that the additional references and information submitted herewith does not anticipate or render obvious any of their claims. Consideration of these materials in connection with the prosecution of this application is respectfully requested.

Respectfully submitted,

Date: 11/25/02

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Table 1

Ref. No.	Reference	Examples
1	US 4,824,808	II/1
2	US 5,374,595	1-27, 30-51
3	US 5,801,109; EP 714,862	4, 14, 31
4	US 5,851,939	4-6, 14
5	US 6,060,168; WO 98/27019	5
6	JP 64(1989)-083538	1, 3, 5-7
7	JP 4(1992)-160030	1-5
8	JP 4(1992)-325436	5-6
9	FR 2675795	6
10	SU 642265	2-3

Table 2

Examples 4, 14, and 31 of Nishizawa US 5,801,109 (EP 714,862)

Example	4	14	31
CTE ($\times 10^{-7}/^{\circ}\text{C}$)	34.8	34.9	31.1
Density (gm/cm^3)	2.497	2.497	2.448
Liquidus Temp. ($^{\circ}\text{C}$)	1210	1170	1320
Liquidus Visc. (poise)	65,500	159,000	12,000

Table 3

Corning Incorporated Glass Composition No. 1733

Composition (mol%)	
SiO ₂	65.0
Al ₂ O ₃	10.4
B ₂ O ₃	12.3
MgO	2.4
CaO	4.9
SrO	2.4
BaO	2.4
RO/Al ₂ O ₃	1.16

Glass Properties	
CTE (x10 ⁻⁷ /°C)	36.5
Density (gm/cm ³)	2.491
Liquidus Temp. (°C)	980
Liquidus Visc. (poise)	6,100,000

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_____	30. 4,824,808	4/1989	Dumbaugh	501	66
_____	31. 5,811,361	9/1998	Miwa	501	70

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_____	32. SU 642265 with attached English translation	1/1979	RU

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